Vol. 14. Parts 9–10. Pp. 113–128. 31st October, 1945.

THE PROCEEDINGS

OF THE

ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Series B.

TAXONOMY

(being the continuation of Stylops)

World List abbreviation: *Proc. R. ent. Soc. Lond.* (B)

CONTENTS

	PAGE
ARROW, Gilbert J., F.R.E.S. Systematic notes on a few genera of erotylid Coleoptera .	117–118
CHINA, W. E., M.A., F.R.E.S. A completely blind bug of the family LYGAEIDAE (Hemiptera Heteroptera)	126–128, 4 figs.
COCKERELL, Prof. T. D. A., F.R.E.S. Halictine bees (Hymenoptera) from Africa (I)	119–125
JORDAN, H. E. Karl, Ph.D., F.R.S., F.R.E.S. On the deciduous frontal tubercle of some genera of Siphonaptera	113–116, 4 figs.

LONDON:

PUBLISHED BY THE SOCIETY AND

SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7

Price 8s. 0d.

THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Founded, 1833. Incorporated by Royal Charter, 1885.

PATRON—HIS MAJESTY THE KING.

OFFICERS and COUNCIL for the SESSION, 1945–1946.

PROF. G. D. HALE CARPENTER, M.B.E., D.M., *President.*

FRANCIS HEMMING, C.M.G., C.B.E.
O. W. RICHARDS, M.A., D.Sc.
C. B. WILLIAMS, M.A., D.Sc.
} *Vice-Presidents.*

A. WELTI, *Treasurer.*

N. D. RILEY, *Secretary.*

Other Members of Council.

E. A. ANDREWS, M.A.
C. H. ANDREWES, F.R.S.
E. A. COCKAYNE, M.A., M.D., F.R.C.P.
J. W. EVANS, M.A., D.Sc.
W. J. HALL, D.Sc.
H. E. HINTON, B.Sc., PH.D.
SIR GUY A. K. MARSHALL, K.C.M.G., D.Sc., F.R.S.
J. F. PERKINS, B.Sc.
MISS E. M. RALFS, B.A.
REV. C. E. TOTTENHAM, M.A.
H. B. WILLIAMS, LL.D.

F. J. GRIFFIN, A.L.A., *Registrar.*

Finance and House Committee.

FRANCIS HEMMING, C.M.G., C.B.E. (Chairman).

R. B. BENSON, M.A.
PROF. H. G. CHAMPION, C.I.E., M.A.
J. W. EVANS. M.A., D.Sc.
W. RAIT-SMITH.
O. W. RICHARDS, M.A., D.Sc.

Publication and Library Committee.

W. J. HALL, D.Sc. (Chairman).

K. G. BLAIR, D.Sc.
H. E. HINTON, B.Sc., PH.D.
B. M. HOBBY, M.A., D.PHIL.
J. F. PERKINS, B.Sc.
C. B. WILLIAMS, M.A., D.Sc.

Committee on Generic Nomenclature.

FRANCIS HEMMING, C.M.G., C.B.E. (Chairman).

W. A. F. BALFOUR-BROWNE, F.R.S.E.
K. G. BLAIR, D.Sc.
O. W. RICHARDS, M.A., D.Sc.
N. D. RILEY (Secretary).

Committee for the Protection of British Insects.

J. C. F. FRYER, O.B.E., M.A. (Chairman).

CAPT. E. BAGWELL-PUREFOY.
R. B. BENSON, M.A.
E. A. COCKAYNE, M.A., M.D., F.R.C.P.
COL. F. A. LABOUCHERE.
N. D. RILEY.
THE HON. MIRIAM ROTHSCHILD.
W. H. THORPE, M.A., Sc.D.
H. M. EDELSTEN (Secretary).

The Executive Officers of the Society are *ex-officio* members of all Committees.

DELEGATES OF THE SOCIETY TO:

1. **British National Committee for Biology** (Royal Society).
   Sir Guy A. K. Marshall, K.C.M.G., D.Sc., F.R.S., appointed 1939.
   Dr. V. B. Wigglesworth, M.A., B.Ch., M.D., F.R.S., appointed 1943.
2. **Local Committee of Management of Wicken Fen.**
   Mr. H. M. Edelsten [nominated by Committee for the Protection of British Insects].
3. **National Trust for Places of Historic Interest or Natural Beauty.**
   Mr. H. M. Edelsten, appointed 1944.
4. **New Forest Association.**
   Mr. W. Fassnidge, appointed 1934.
5. **New Forest Joint Committee.**
   Mr. W. Fassnidge, appointed 1939. *Dr. F. J. Killington, appointed 1939.*
6. **Royal Meteorological Society. Phenological Committee.**
   Dr. C. B. Williams, appointed 1937.
7. **Biology War Committee.**
   Prof. P. A. Buxton, F.R.S., appointed 1941.
8. **Council for the Promotion of Field Studies.**
   Dr. W. H. Thorpe, M.A., Sc.D., appointed 1944.

ON THE DECIDUOUS FRONTAL TUBERCLE OF SOME GENERA OF SIPHONAPTERA

By H. E. Karl Jordan, Ph.D., F.R.S., F.R.E.S.

In a large number of fleas the anterior section of the head (the frons) bears in the median line a projection which is termed in systematics "the frontal tubercle." In its simplest form it appears as an angle of the frons. The tubercle varies much in position, size and shape and is either entirely external or projects from a groove, a few examples being illustrated by figs. 1 and 2, which are based on cleared and mounted specimens (all females). As a rule, the individuals of the same species have the same type of tubercle; but there are exceptions. In *Nosopsyllus punjabensis* J. & R. 1921, for instance, and some allied species, a small percentage of both sexes has the tubercle like fig. 1, A, while in the other individuals it is like fig. 1, B, and in some species of the South African genus *Chiastopsylla* Roths. 1911 the tubercle and the frontal area beneath it are different in the sexes, some exceptional females, however, agreeing with the male. In the genera where the frons of the male is more strongly convex and longer than in the female the tubercle has generally a more dorsal position in the male. The genera represented by fig. 1 bear the tubercle in the lower half of the frons, the pre-oral corner being indicated in fig. 1 (lateral aspect of the concave ventral margin of the frons); in fig. 1, A, the labrum and epipharynx are added (the sclerite extending obliquely upward from the pre-oral corner is transverse in frontal aspect and evidently corresponds to the clypeus of other insects). The placoids are shown in the figures because they prove that there is some taxonomic significance in the position of the tubercle. There are three placoids of the larger kind on each side of the frons, one dorsal (dp) the next farther down (mp) and the third near the ventral corner, all variable in position, the ventral one being the smallest and not present in every species. In the genera (and their allies) illustrated by fig. 1 the frontal tubercle is placed below the middle placoid (mp) and in the small number of genera of the Pulicidae which have a frontal tubercle (fig. 2) it is placed above the middle placoid, sometimes near the dorsal one (dp) (fig. 2, E).

The tubercles here referred to are permanent, remaining a part of the frons during the imaginal life of the individual. A small number of genera, however, have another kind of tubercle, a deciduous one, a fact which does not seem to be generally known to specialists in Siphonaptera, which is one of the reasons for the publication of this paper, the other being the general interest attached to the occurrence of a deciduous organ in an imago.

The deciduous tubercle is preserved in only a small percentage of specimens, whether cleared and mounted or preserved in alcohol. Its occurrence seems to be restricted to the Ischnopsyllidae and Vermipsyllidae. In bat-fleas (fig. 3) the tubercle is found near the ventral margin of the frons. It is pale and triangular, with the tip pointed or somewhat rounded; a view from the dorsal or ventral side proves it to be conical. In specimens without the tubercle a minute scar can sometimes be detected. This tubercle is absent from the genera which have a permanent one (*Nycteridopsylla* Oudem. 1906 and *Ptilopsylla* J. & R. 1921). I have found no trace of it in our very small series of *Chiropteropsylla* Oudem. 1908 and *Hormopsylla* J. & R. 1921, nor in our rather large

series of *Myodopsylla* J. & R. 1911, where I expected to come across a specimen with a deciduous tubercle; further observations are required. There are in the collection specimens with the deciduous tubercle *in situ* of *Araeopsylla* J. & R. 1921, *Ischnopsyllus* Westw. 1833, *Lagaropsylla* J. & R. 1921, *Oxyparius* Jord. 1936, *Rhinolophopsylla* Oudem. 1909, *Sternopsylla* J. & R. 1921, and *Thaumapsylla* Roths. 1907.

Whereas it is impossible at this stage of knowledge to decide with certainty whether a species of bat-fleas without permanent frontal tubercle has a deciduous one or not, unless the tubercle is found *in situ* at least in one specimen, there is

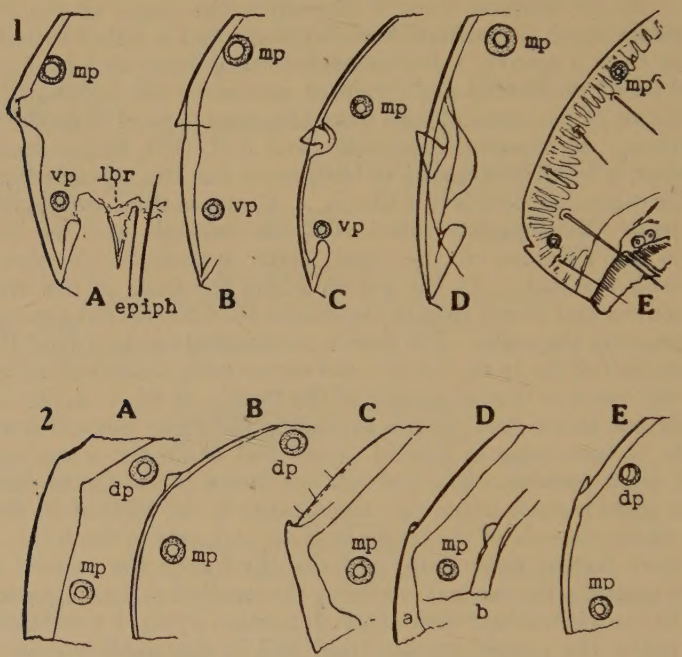

Fig. 1.—A. *Nosopsyllus punjabensis* J. & R. 1921; *lbr* labrum, *epiph* epipharynx, *mp* middle placoid, *vd* ventral placoid. B. The same species. C. *Ctenophthalmus agyrtes* Heller 1896. D. *Rhopalopsyllus australis* Roths. 1904. E. *Nycteridopsylla longiceps* Roths. 1908. Note: All figures are × 260.

Fig. 2.—A. *Cediopsylla simplex* Baker 1895; *dp* dorsal placoid. B. *Ornithopsylla laetitiae* Roths. 1908. C. *Echidnophaga larina* J. & R. 1906. D. *Echidnophaga macronychia* J. & R. 1906; two specimens. E. *Delopsylla crassipes* Jord. 1936.

no such difficulty in the Vermipsyllidae. According to Wagner's classification, the family consists of three genera, of which two (*Vermipsylla* Schimk. 1885 and *Arctopsylla* Wagn. 1930) have a permanent frontal angle or tubercle, while the third genus, the correct name of which I consider to be *Trichopsylla* Kolen. 1863 (syn.: *Chaetopsylla* Kohaut 1903 and *Oncopsylla* Wahlgren 1903), has a deciduous one. These fleas being large and the frons broad, the tubercle when broken off leaves a conspicuous scar, with the exception of *A. lasius* Roths. 1906, in which the tubercle is minute and the scar therefore inconspicuous. All specimens of *Trichopsylla* show the scar, and the British Museum collection contains, of all the European species of *Trichopsylla*, specimens in which the tubercle is preserved. I figure three lateral views of *T. trichosa*

Kohaut 1903. In the specimen from which fig. 4, A, is drawn the tubercle is more exposed that usually, its base being often sunk to the level of the surface of the frons; for unlike the tubercle of bat-fleas there is a groove under it. The tubercle is conical. The scar left by the discarded tubercle usually has a rugged edge, which varies in height according to the amount left of the connection between tubercle and outer surface of frons. Fig. 4, D, presents a view from front: the dark sides of the groove appear as a circular ring below the surface of the frons and from the centre of the pale area encircled arises the tubercle, numerous irregular wrinkles running from the basal margin of the tubercle in all directions (which suggests a shrinkage caused by the alcohol in which the specimens were originally preserved).

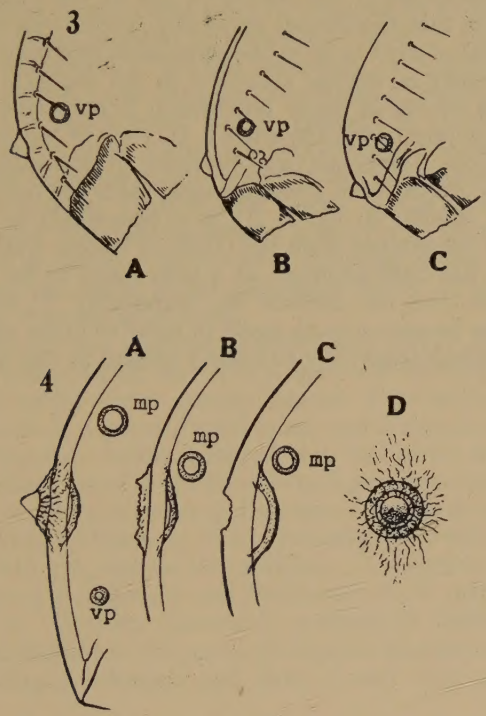

Fig. 3.—A. *Ischnopsyllus elongatus* Curtis 1832. B. *Sternopsylla texanus* Fox 1914. C. *Lagaropsylla mera* J. & R. 1921.
Fig. 4.—A–D. *Trichopsylla trichosa* Kohaut 1903.

The question whether the deciduous tubercle occurs outside the two families here mentioned is a matter for further study. A near approach is found in the Pulicidae (fig. 2), of which more than two-thirds of the species have no frontal tubercle at all. The genera of this family in which the frons is angulate or tuberculate show a distinct trend to an upwards movement of the angle and tubercle, and of the development of a depression above the angle. The fleas of hares and rabbits present an interesting series: *Hoplopsyllus* Baker 1905 with neither frontal angle nor tubercle; *Cediopsylla* Jord. 1925 (fig. 2, A) with angle but no tubercle; *Spilopsyllus* Baker 1905 with distinct angle often raised into a small tubercle and with a depression above it; and *Ornithopsylla* Roths.

1908 (in nests of sea-birds) with a distinct pale tubercle (fig. 2, B), which, however, is sometimes small or even absent (?), further observations being required. In the PULICINAE *Pulex* Linn. 1758 has a smooth frons; in *Echidnophaga* Olliff 1886 some species have a more or less sharp angle directed upwards (fig. 2, C) and a depression above it, in other species (fig. 2, D) the angle is obtuse and bears a pale tubercle instead of a hook; and in *Delopsylla* Jord. 1926 (fig. 2, E) the tubercle above the angle is longer than broad, directed upwards, pale and present in all specimens of a rather large series (*Moeopsylla* Roths. 1908 has the same tubercle).

As the deciduous tubercle does not occur in the genera of ISCHNOPSYLLIDAE and VERMIPSYLLIDAE which have a permanent one, the two kinds of tubercles exclude each other and are homologous. The tubercle being acquired in the pupal stage, the discarding of the deciduous one by the imago after liberation confirms the opinion that the frontal projection, permanent or deciduous, is an aid in the emergence of the flea from the pupal skin and cocoon.

There is apparently no similar structure in the Diptera, but an analogous frontal prominence occurs in many noctuiform Lepidoptera (NOCTUIDAE and AGARISTIDAE), a far jump even for a flea! In view of the fact, however, that among the fleas of the Marsupials (and Rodents) of Australia and New Guinea (some forty species, exclusive of *Echidnophaga*) there are only two species with a frontal tubercle (similar to fig. 1, B), it is reasonable to assume that this structure is not an inheritance from the Order of insects which gave rise to the Siphonaptera, but has been acquired at a later stage in the phylogeny of the fleas. This opinion does not exclude the probability (1) that at a still later period the frons has become smooth again in some or many species and (2) that a species with a smooth frons may be closely related to one which has a frontal tubercle.

SYSTEMATIC NOTES ON A FEW GENERA OF EROTYLID COLEOPTERA

By Gilbert J. Arrow, F.R.E.S.

British Museum (Natural History).

In Notes and Descriptions of some American Erotylidae (1944, *Amer. Mus. Nov.* **1256** : 1) Mr. C. H. Curran remarks : " It is most unfortunate that the long-established name *Megalodacne* must be replaced by *Zonarius*, while *Zonarius*, as now used, must be replaced by *Alloiotelus* Hope." This statement is due to the erroneous assumption that the genotypes of *Megalodacne* (the North American *Ips fasciatus* F.) and *Zonarius* (the South American *Erotylus fasciatus* F.) are the same. It was pointed out by Lacordaire (1842, *Monographie des Erotyliens* : 24) that the latter insect is a Tenebrionid and that Hope, instead of describing his genus *Zonarius*, merely referred to the characters enumerated by Fabricius for that species. This is now placed in the genus *Poecilesthus* Bl. (1845) and that name therefore becomes a synonym of *Zonarius* Hope (1841). Lacordaire omitted to rename the Erotylid *Zonarius* of the catalogues, which, as Mr. Curran says, should be called *Alloiotelus* Hope. The entirely different genus *Megalodacne* remains unaffected.

In my list of the African species of Erotylidae (1917, *Ann. Mag. nat. Hist.* (8) **20** : 155) I have distributed the various species attributed by Gorham to his genus *Amblyscelis* under three generic names, *Petaloscelis*, *Amblyopus* and *Tritoma*. *Petaloscelis* is a pre-occupied name and I consider that it should be replaced by *Amblyscelis*. Gorham stated that the latter name was proposed for the African species placed in *Amblyopus* by Lacordaire and Crotch but these (*senegalensis* Lac., *natalensis* Crotch and *murrayi* Crotch) do not agree with the characters formulated by Gorham, which were evidently taken from the species described by himself, viz., *kelleni* and *pallidus*. I therefore regard the former of these as the type of *Amblyscelis* and *Petaloscelis* Gorh. (type *instabilis* Gorh.) as a synonym of it. Gorham afterwards confused *A. kelleni* with an Indian species to which he had given the name *Amblyopus haemorrhous* and, misled by an erroneous catalogue reference and date, I used that name for it in my list.

The familiar name *Tritoma* has suffered from a particularly regrettable duplication. In the sense in which it is at present used, it was first employed by Fabricius (1775, *Syst. ent.*)for the British *Tritoma bipustulata* F. but it was originally bestowed by Geoffroy in 1762 upon the very different insect now called *Mycetophagus quadripustulatus*, of which an easily recognisable figure was given, although unaccompanied by any specific name. Geoffroy's name and diagnosis were reproduced two years later by Mueller, whose 1764, *Fauna Ins. Fridrichsdalina* must be accepted as of true Linnean orthodoxy, although Geoffroy's *Hist. Ins. Paris* is usually rejected. The duplication of the name was discovered by Crotch, who, in 1873, introduced the name *Cyrtotriplax* for the Erotylid genus called *Tritoma* by Fabricius. He named as its type that of *Tritoma* F. (*T. bipustulata* F.), so that Gorham's attempt (1901, *Stettin. ent. Ztg* **1901** : 191) to give *Cyrtotriplax* another type and a different application can be ignored.

Heller (1920, *Arch. Naturges.* **84** (A) (8) : 27) has assigned to it yet a third type and proposed, perhaps inadvertently, to substitute for it a new name. The name *Ortitma* was apparently intended as that of a new genus for *C. cebana* Gorh., a synonym of *C. nigripennis* Motsch. (see Arrow, 1925, *Fauna Brit. India, Erotylidae* : 127).

In dealing with the Indian members of the group (1925, *Fauna Brit. India, Erotylidae* : 121) I admitted my inability to fix any dividing line between the species of this genus and those included in *Triplax*, notwithstanding the wide interval separating their two European types. The dissimilarity of these certainly renders very desirable the recognition of the two genera as distinct. Heller, by the creation of several new genera and sub-genera, has dealt with a few of the very numerous intermediate forms without great success. His genus *Trimota*, proposed for *T. apicalis* Hell. and *Cyrtotriplax oppositipunctata* Gorh., is identical with *Triplacidea* Gorh., *oppositipunctata* being the wide-ranging species cited later by Gorham, under the name *motschulskyi*, as the type of *Triplacidea*. Heller's *Triplacidea* (with hatchet-shaped last joint to the maxillary palpus) is not that of Gorham. Heller's sub-genera *Ogcotriplax* and *Pseudotriplax*, although placed in *Triplax*, have little affinity with the type of the genus, *T. russica* L.

Pending a comprehensive revision, the best course would be perhaps to confine the name *Triplax* to its few European species closely related to *T. russica* (to which the North American *T. californica* Lec. and the Japanese *T. discicollis* Lewis are also nearly related) and provisionally to refer all the rest, including *Ogcotriplax*, *Pseudotriplax*, *Ortitma*, *Tritomophasma* and *Triplacidea*, to *Cyrtotriplax* Crotch.

The synonymy notified above is as follows :—*Zonarius* Hope, 1841 (= *Poecilesthus* Bl., 1845). *Alloiotelus* Hope, 1841 (= *Zonarius* auctt.). *Amblyscelis* Gorham, 1888 (= *Petaloscelis* Gorh., 1896). *Tritoma* Geoffroy, 1762, Mueller, 1764 (= *Mycetophagus* Hellwig, 1792). *Cyrtotriplax* Crotch, 1873 (= *Tritoma* F., 1775). *Triplacidea* Gorham, 1901 (= *Trimota* Heller, 1920).

HALICTINE BEES (HYMENOPTERA) FROM AFRICA (I)

By Prof. T. D. A. Cockerell, F.R.E.S.

The African bees of the genus *Halictus* which I have studied are very numerous, but must represent only a small part of the actual fauna. The numerous species from the Belgian Congo and Liberia, sent by Dr. J. Bequaert, are nearly all different from those from other parts of Africa, received from the British Museum. The species from Uganda are in general different from those of the Belgian Congo, while those from the region near Lake Kivu show little resemblance to those from the Katanga. The *Halictus* fauna of the Sudan is quite distinct from that of the Mediterranean littoral of the north and the tropical regions to the south. Thus it appears that *Halictus*, spread widely over the earth, is one of the largest genera of animals. There are various related genera, especially in the Neotropical Region, but to divide *Halictus*, as commonly recognised, into a series of genera does not seem practicable.

Halictus ufiomicus sp. n.

♀. Length about 9·5 mm., anterior wing 7·7 mm.; black, robust, mandibles and antennae black, the flagellum very faintly brownish beneath; hair of head and thorax pale greyish; tongue not elongated; clypeus and supraclypeal area dull, the clypeus a little shining, with a median groove; front dull, with a very narrow, almost obsolete, shining line along orbits; vertex shining; mesonotum and scutellum dull, faintly shining, but not at all polished, mesonotum with no distinct median groove; postscutellum with erect hair, not evident when seen from above; area of metathorax glistening with fine, close, very distinct parallel plicae; tegulae large and black; wings dusky; stigma very dark, not large; outer nervures hardly weakened; second submarginal cell very broad, receiving recurrent nervure near end; outer side of third submarginal cell with a double curve; legs with the middle and hind femora reddish, and the hind tarsi red; hair on inner side of hind basitarsi light red; abdomen dullish, with very inconspicuous patches of pale hair at lateral bases of tergites 2 to 4; hind margin of tergite 1 with an extremely narrow greenish tegumentary band, of second also with a similar band; hair on last tergite dark, this furrow appearing dark; ventor with copious pale hair.

" German E. Africa " : Ufiomi, 2–6 June, 1916 (*W. A. Lamborn*).

H. bilineatus Friese is smaller (8 mm.), but has the same fine bands on the first two tergites. *H. trifilosus* Ckll. has much more distinct bands, a polished mesonotum, and a quite different area of metathorax. *H. patriciformis* Ckll. is larger, and has a different area of metathorax.

Halictus lulengonis sp. n.

♀. Length about 9·5 mm., anterior wing 8 mm.; this is so similar to the last species, that I at first thought it the same, but it is definitely distinct by the following characters: clypeus (but not supraclypeal area) shining, without a median groove; tegulae dark brown; hair of head and thorax faintly ochraceous; plicae of area of metathorax denser; nervures not so dark; outer side of third submarginal cell without a double curve; legs black, slightly brownish, only the small joints of tarsi red; abdomen less robust, with no trace of the tegumentary bands; hair at apex paler. The hind spur has a large oblique lamina

near the base, followed by about four small denticles. Hair of inner side of hind tarsi pale red.

Belgian Congo: Lulengo, 22 Oct., 1914 (*J. Bequaert*).

Halictus gossypiellus sp. n.

♂. Length about 7 mm., anterior wing 5·3 mm.; black, with the hind tarsi (but not the others) clear red; pubescence white, conspicuous on thorax above, on postscutellum long and erect; head broad-oval; clypeus strongly elevated, projecting, rather strongly sculptured; supraclypeal area small and dull, but sides of face shining; a linear shining band along orbits; mandibles black; antennae rather short for a male, flagellum brown beneath; mesonotum and scutellum slightly shining, well punctured, not at all polished; area of metathorax shining, with very strong well-spaced plicae; posterior truncation circular, shining; tegulae very dark brown, sometimes with a red spot; wings clear, with a very faint brownish tinge; stigma small and narrow, light brown; nervures brown, outer nervures weakened; second submarginal cell broad, receiving recurrent nervure at apical corner; abdomen broad, shining, without bands or spots, the hind margins of tergites slightly (sometimes not) reddish.

Uganda: Kampala, 20 and 26 Nov., 1929, on cotton flowers (*G. L. R. Hancock*). Three specimens. Closely allied to *H. nigritinus* Ckll., from Tshibinda, but easily separated by the red hind tarsi. The hind tarsi are red in the South African *H. farquhasi* Ckll. and *H. matabelicus* Ckll.

♀. Length about 6·5 mm., anterior wing 6 mm.; black, robust, with greyish-white hair, not dense at sides of face, conspicuous on thorax above and at sides, thick on postscutellum, but erect, and not visible as a pale patch seen from above; head rather broad; clypeus produced and strongly sculptured, somewhat shining, with a large round subapical pit; supraclypeal area dull; mandibles black; flagellum brown beneath except at base; mesonotum dull, weakly shining on disc, and quite strongly shining posteriorly; scutellum dull, with two moderately shining elevations; area of metathorax short, evenly rounded behind, with very strong well-spaced plicae; posterior truncation circular; tegulae black; wings hyaline, stigma narrow, dusky brown; nervures brown; second submarginal cell narrow, receiving recurrent nervure at apical corner; third submarginal little produced apically; legs black, with the middle and hind tarsi clear red, and the front ones reddish; hind spur with small denticles; abdomen broad, shining, the first tergite polished, second with a basal band of white hair, interrupted in middle, third with a band which is almost entirely hidden; no patches of white hair at sides of first tergite, but some thin hair at extreme sides.

Uganda: Kampala, 20 Nov., 1929 (*G. L. R. Hancock*). On flowers of cotton. I had described this as a distinct species, but on comparing it with the male *H. gossypiellus* Ckll., taken from cotton flowers at the same place, I am convinced that it is the same species.

Halictus nairobiensis sp. n.

♀ (Type). Length about 7 mm., anterior wing 6 mm.; robust, black, with broad abdomen, tergites 2 to 4 with broad entire basal bands of pure white hair, no distinct patches of hair on sides of first tergite, and no line of hair along sides and hind margin of mesonotum; pubescence white, abundant and erect on postscutellum, but not forming a conspicuous patch seen from above; mandibles, antennae and tegulae black; face rather narrow, with abundant white hair at sides; front dull, with a shining band next to upper end of orbits; cheeks broad, with much white hair; clypeus large, very coarsely punctured; supraclypeal area dull; mesonotum dull, except posteriorly; scutellum with two shining

closely punctured spots; area of metathorax not very large, finely striate or plicatulate; wings dusky; stigma rather small, reddish; second submarginal cell broad, receiving recurrent nervure some distance from end; outer nervure weakened; legs black, the tarsi brownish apically; hind spur long, with a single short oblique rounded tooth, like the end of a finger; abdomen shining.

♂. Clypeus all black; antennae long; legs black; mesonotum slightly shining; apical plate dark; underside of abdomen near apex with on each side an angular tooth.

Uganda: Nairobi (*Van Someren*). Type July 1930; another female with the same data, as also the male.

The hind spur is like that of *H. michaelsoni* Friese, to which it is closely allied. *H. michaelsoni* was described from S.W. Africa, and is widely distributed over S. Africa; it is perhaps best to regard *H. nairobiensis* as a northern race, with very white hair-bands.

Halictus nairobicus sp. n.

♀. Length about 8 mm., anterior wing 6 mm.; robust, black, the abdominal tergites 2 to 4 with entire broad basal bands of white hair; mandibles red; clypeus shining; supraclypeal area polished and shining; mesonotum dull, slightly shining on disc; base of scutellum highly polished; sides and posterior margin of mesonotum with a slender band of pale hair; area of metathorax glistening, irregularly rugose; tegulae red; wings hyaline; stigma dusky red; second submarginal cell very broad, receiving recurrent nervure at its apical corner; outer nervures weakened; marginal cell obtuse at end; small joints of tarsi clear red; hind basitarsi with a bright red brush at end; hind spur with five stout teeth, the first long, the others successively shorter, the last rudimentary; abdomen shining.

Uganda: Nairobi (*Van Someren*). Type March 1928; another April 1928. This is superficially like *H. nairobiensis* Ckll., so that at first sight I took it for a variety, but it is quite distinct by the characters cited. The hind spur and red brush at end of hind basitarsus resemble those of *H. australis* Vachal, but in other respects the bees are quite different. *H. tanganus* Ckll. is smaller, and has a patch of dense tomentum at each side of first tergite. There is also a female *H. nairobicus* from Kibwezi, Dec. 1929 (*Van Someren*).

Halictus nialensis sp. n.

♀. Length about 8 mm., anterior wing 5 mm.; black, robust, with broad abdomen; pubescence scanty, dull white, in part tinged with ochraceous; postscutellum densely covered with pale ochraceous tomentum; head broad; clypeus and supraclypeal area shining, but strongly punctured; a highly polished area on each side of the clypeus; front dull, with a very slender shining line along orbits; mandibles and antennae black; mesonotum dull, with a narrow band of whitish hair on each lateral margin; scutellum with two strongly shining elevations; area of metathorax rather small, with dense strong rugae, making the surface very rough; tegulae dark brown; wings faintly dusky; stigma dusky red; nervures brown, outer nervures a little weakened; second submarginal cell broad; first recurrent nervure meeting intercubitus; third submarginal cell narrower than usual, no wider below than second; legs with the tarsi (except middle basitarsi) obscurely reddish; hind spur with four stout oblique spines, not very long; abdomen shining, with ochreous-tinted tomentum forming a large patch on each shoulder of first tergite, continuous rather narrow bands at bases of second and third, and a less distinct band on fourth.

Sierra Leone: Njala, Sept. 29 (*E. Hargreaves*). The dense hair on postscutellum is as in *H. capnopus* Vachal, but otherwise the insect is very different. *H. tanganus* Ckll. has the tomentose postscutellum, the dull mesonotum, and the patches of tomentum on first tergite, also the first recurrent nervure meeting

intercubitus; but it has the mandibles mainly red, the tegulae light reddish, and the hind spur with three spines, but they appear to be closely related.

A female of *H. nialensis* was taken by J. Bequaert at LIBERIA: Gbanga, Sept. 1926. It is easily known from *H. liberiensis* by the much finer sculpture of the area of metathorax.

Halictus kampalensis sp. n.

♀. Length about 7 mm.; anterior wing 5 mm.; black, with the mesonotum, scutellum and abdomen polished and shining; pubescence white, thin and easily denuded on thorax above, thin on face, abundant at sides of thorax, inconspicuous on postscutellum; head broad; mandibles dusky red; tongue with a narrow extension, extending far beyond the labial palpi; clypeus moderately shining, coarsely punctured; supraclypeal area dull or somewhat shining; antennae black; scutellum with a median groove; area of metathorax rugose, with a fine, dense, lineolate sculpture; tegulae very dark brown, almost black; wings hyaline, stigma dark brown, nervures brown; second submarginal cell narrowed above, receiving recurrent nervure at the apical corner; third submarginal not very broad; legs black; hind spur with five little denticles; abdomen broad, with conspicuous wedge-shaped marks of white tomentum at lateral bases of second and third tergites; apex with white hair.

UGANDA: Kampala, 7 Nov., 1926 (*G. L. R. Hancock*). Also three others from the same place, two taken by Hancock in 1926, one by Gowdey, 30 Sept. 1915. *H. hancocki* Ckll., described from a male, resembles this, but the area of metathorax is quite different. *H. entebbianus* Ckll. is allied, but distinguished by the banding of abdomen and other characters. *H. xerophilinus* Ckll. is smaller, with quite a different area of metathorax. *H. ugandicus* Ckll. has similar abdominal marks, but is otherwise quite different.

Halictus ibadanicus sp. n.

♀. Length about 7·7 mm., anterior wing 6 mm.; black, with the legs dark reddish; pubescence dull white, but dense on tubercles (which are reddish) and postscutellum, and here slightly ochreous; mandibles black, with a red mark; flagellum brown beneath; head rather broad; sides of face with pale hair; clypeus glistening, with a large round median pit; supraclypeal area shining but punctured; mesonotum dull, with a band of hair along all its margins; scutellum somewhat shining; area of metathorax rugose, but without distinct plicae; tegulae reddish, rather pale; wings hyaline, faintly dusky; stigma dusky red; nervures rather pale, outer nervures weakened; second submarginal cell broad, receiving recurrent nervure near end; third submarginal hardly broader than second; legs with much pale hair; abdomen with hair at base and sides of first tergite, which is dullish; first two tergites with the hind margins narrowly reddish; second tergite with a narrow hair-band at base; third with a very broad band, and also a subapical one; fourth with a band.

S. NIGERIA: Ibadan (collector's name not given, but No. 494). Related to *H. capnopus* Vachal, but larger, with the banding of abdomen peculiar, and other small differences. It may prove to be a race of *H. capnopus*. In having the third tergite with two hair-bands, it is related to the S. African *H. trichardti* Ckll. and *H. acaciae* Ckll.

Halictus microsellatus sp. n.

♂. Length about 5·5 mm., anterior wing nearly 4 mm.; rather slender, head and thorax black, abdomen and legs dark brown; pubescence scanty, dull white, but second

tergite with a broad saddle of white tomentum, the abdomen not otherwise banded; mandibles and antennae black; head broad; clypeus all black, prominent, moderately shining; mesonotum and scutellum polished; area of metathorax short; tegulae dark reddish; wings faintly dusky, iridescent, stigma and nervures brown, outer nervures weakened; second submarginal cell rather broad below, narrower above, receiving recurrent nervure at extreme apex; third submarginal cell broad; abdomen shining, with a dark reddish apical plate, but no lateral denticles. The antennae are short for a male.

Uganda: Kampala, 17 Aug. 1915 (*C. C. Gowdey*, 5460). This belongs to the group with a saddle-like band on second tergite, tabulated 1937, *African Bees*: 80. It falls rather near *H. katangensis* Ckll., but is distinguished by the dark antennae and other characters.

Halictus aburiensis sp. n.

♀. Length about 6·3 mm., anterior wing 4·7 mm.; black, not very robust, with scanty pale hair, not conspicuous on face; head circular seen from in front; mandibles and antennae black; clypeus not produced, it and supraclypeal area shining; sides of face next to clypeus, and a line along orbits shining; mesonotum dull (scutellum destroyed by pin); postscutellum covered with white tomentum; area of metathorax with very weak irregular plicae, only clearly seen under microscope; tegulae small, very dark brown; wings dusky; stigma dusky red; nervures brown, outer nervures not weakened; second submarginal cell small; first recurrent nervure joining third submarginal cell near base; legs black; hind spur with two large blunt spines, and a small third one; abdomen shining, with pale tomentum, not very conspicuous, at bases of second and third tergites; no hair-spots at sides of first tergite.

Gold Coast: Aburi, 1912–13 (*W. H. Patterson*). The mesonotum, though dull, is faintly shining on disc, but this is hardly noticeable. Compared with a series of W. African species, this is smaller and less robust. It is also separated by the venation and other characters. There is a species from Busunga, Belgian Congo, which keys out next to this, but differs by the very large pure white scape on hind femora. It is not described, as the abdomen of the only specimen is missing.

Halictus semilucidus sp. n.

♀. Length about 7·5 mm., anterior wing 5·3 mm.; black, with scanty greyish-white pubescence; long hairs at sides of face, and much hair on sides of thorax; postscutellum with a rather inconspicuous band of white tomentum; mandibles and antennae black, the flagellum faintly brownish beneath; head approximately circular seen from in front; clypeus moderately shining, duller towards base, with no strong sculpture or apical pit; supraclypeal area shining; mesonotum dullish in front, but about the posterior half shining; scutellum moderately shining, but not polished; area of metathorax short, dull, without strong plicae; tegulae very dark brown; wings dusky; stigma narrow, brown, with a darker margin; nervures brown but outer nervures bounding cells colourless; second submarginal cell broad, recurrent nervure interstitial; third submarginal not much produced apically; legs black, the tarsi rufescent apically; hind spur with a single rounded lamella about the middle; abdomen shining, without distinct hairs-bands or spots, but third tergite at extreme sides with some long hair, fourth and fifth more hairy, exposed bases of fourth and fifth tergites broadly reddish.

Uganda: Kampala, 5 Aug., 1915 (*C. C. Gowdey*, 5475). *H. kibwezicus* Ckll. is allied, differing by the reddish tegulae and more polished mesonotum.

The hind spur appears to resemble that of *H. michaelsoni* Friese, which has a different abdomen. It is known from *H. kampalensis* Ckll. and *H. xerophilinus* Ckll. by the scutellum not being polished. The latter species is also much smaller.

Halictus picaninus sp. n.

♀. Length about 5·5 mm., anterior wing 4·3 mm.; black, head and thorax with scanty pale pubescence, dense enough on postscutellum to form a distinct white patch; head broad; clypeus projecting; mandibles black; flagellum brownish beneath; clypeus, supraclypeal area, and adjacent sides of face shining; mesonotum entirely dull; scutellum faintly shining with a median groove; area of metathorax shining, not evidently plicate; tegulae very dark brown; wings dusky; stigma large, dark reddish-brown; nervures rather pale brown, outer nervures distinct; second submarginal cell small and narrow; first recurrent nervure going to basal corner of third submarginal cell, which is little produced apically; legs black; abdomen short and broad, with inconspicuous pale pubescence at bases of second and third tergites; first tergite highly polished. Under the microscope, the area of metathorax shows some very weak plicae.

Uganda: Kampala, 1 Nov., 1926 (*G. L. R. Hancock*). A male of the same size and general appearance was taken by Gowdey at Kampala, 17 Sept., 1915, but it has the mesonotum shining, and must be a different species. Unfortunately it is without a head. A male from the Belgian Congo has a dull mesonotum, and a similar area of metathorax. The clypeus is all black, with horny pubescence. This is provisionally referred to *H. picaninus* in spite of the different locality (Kasindi to Beni, Belgian Congo, 29°30′ E., 0°30′ N., Aug. 1914, *J. Bequaert*). Although the male clypeus appears black, there is on magnification some indication of an apical yellow band.

H. xerophilinus Ckll., another small species from Uganda, has a shining mesonotum, the sides of clypeus and adjacent parts dull, and very conspicuous basal hair-bands on abdomen.

Halictus kibwezicus sp. n.

♀. Length about 9 mm., anterior wing 5·7 mm.; black, including mandibles and antennae, but tegulae rather pale brown; wings short, reaching to about middle of third tergite; pubescence dull white, long and conspicuous in region of mouth; a large tooth below clypeal margin on each side; clypeus short and dull, the margins shining; supraclypeal area hardly shining; front somewhat shining; sides of vertex polished; mesonotum polished (the thick form is through the scutellum, which cannot be described); area of metathorax quite dull, with the extreme margin shining; wings hyaline, very faintly dusky; stigma very small, pale, with a dark margin; nervures pale brown; basal nervure meeting nervulus; second submarginal cell small, receiving recurrent nervure at extreme end; third submarginal cell remarkably elongated, the outer margin with a strong double curve; marginal cell normal; legs black; hind spur large, not pectinate or dentate; abdomen dullish, not banded, but with hair along lateral margins. The abdomen beneath, and the hind legs, have collected a great quantity of orange pollen.

Uganda: Kibwezi, W. F., Dec. 1929 (*Dr. Van Someren*). A peculiar species, suggestive of the South African *H. bidens* Cameron, with ventral abdominal scape as in *H. rhodaspis* Ckll.

The following table compares some of these superficially similar species from Uganda:

At least second tergite with a sharply defined basal hair-band . . . . . 1.
Second tergite with no basal hair-band . . . . . 3.
1. First tergite without lateral patches of hair; scutellum dull. Male. *ugandicus* Ckll.
First tergite with lateral patches of pale hair; scutellum shining . . . 2.
2. Band on third tergite very broad; area of metathorax not coarsely sculptured . . . . . *zonaturus* Ckll.
Band on third tergite narrow; area coarsely sculptured . . *somereni* Ckll.
3. Tegulae pale; head broad and short. . . . . *kibwezicus* Ckll.
Tegulae black, or nearly so . . . . . *entebbianus* Ckll.

Halictus platyaspis sp. n.

♂. Length about 7·5 mm., anterior wing 5·5 mm.; black, the curved abdomen with a very faint brownish tinge, and the hind margins of the first two tergites (but not the third) very narrowly pale and shining; pubescence dull white, scanty and inconspicuous; mandibles and antennae black, the flagellum obscurely brownish beneath; clypeus all black, prominent, shining, sides of face shining, but supraclypeal area dull; mesonotum dull, faintly shining on disc, with a strong median groove; scutellum dull, large and flat; postscutellum not evidently hairy; area of metathorax with very strong plicae, the intervals shining; tegulae black; wings dusky; stigma and nervures brown; second submarginal cell narrow, parallel-sided, receiving recurrent nervure at apical corner; third submarginal with its lower part about twice as broad as second; marginal cell obtuse at end, with an appendicular nervure; legs black, the tarsi bright red at extreme end; abdomen without evident bands or spots, but a little pale hair at lateral bases of second and third tergites.

Belgian Congo: Lubutu, 0°40′ S., 26°40′ E., 31 Jan., 1915 (*J. Bequaert*). Runs in my table nearest to *H. ugandicus* Ckll., from which it is known by the polished sides of clypeus and adjacent areas.

Halictus kabindiellus sp. n.

♀. Length about 5·5 mm., anterior wing 4 mm.; black, with very scanty greyish-white pubescence, inconspicuous on face and front and sides of thorax, but postscutellum covered with pale tomentum; head broad, clypeus little produced, the shining apical triangle strongly punctured, pointed above, meeting the shining supraclypeal mark; mandibles black; flagellum faintly brownish beneath; a shining spot at each side of base of antennae; mesonotum dull, faintly shining posteriorly; scutellum dull; the microscope shows the mesonotum minutely lineolate, with excessively small widely separated punctures; area of metathorax fairly large, shining, sculptured along basal margin; tegulae very dark, faintly brownish; wings dusky hyaline; stigma pale dusky brown; nervures brown, first recurrent nervure interstitial; legs black, the small joints of tarsi reddish; abdomen broad, shining; pale hair at sides of first tergite; second to fourth with basal bands, very narrow on second, widest on fourth.

Belgian Congo: Kabinda 6°8′ S., 24°21′ E. (*J. Bequaert*). From *H. boswendiellus* Ckll., which has a dull mesonotum, this is readily known by the banded abdomen and the wings not brown apically. It is very like *H. epichlorops* Ckll., but may be separated by the dull mesonotum and the larger, browner, tegulae.

A COMPLETELY BLIND BUG OF THE FAMILY LYGAEIDAE (HEMIPTERA HETEROPTERA)

By W. E. China, M.A., F.R.E.S.

So far as I am aware the only Heteroptera in which compound eyes and ocelli are both entirely absent, belong to the Polyctenidae, a family of ectoparasitic bugs related to the Cimicidae living on bats, and to the Termitaphididae, a peculiar group of termitophilous insects allied to the Aradidae and Dysodiidae.[1] The ocelli are normally absent in a number of families of Heteroptera and occasionally absent in others but in the Lygaeidae they are almost invariably well developed, the only exceptions hitherto known to me being species of the genus *Camptocera* Jakowleff 1877 (= *Phthonosteres* China 1924). In the new genus about to be described, not only are the ocelli absent but the compound eyes as well are entirely lacking so that the insect must be completely blind. The absence of compound eyes is very remarkable in an otherwise normal family of Heteroptera. The following description is based on material collected by Mr. A. H. Strickland in the soil of a cacao plantation in Trinidad, British West Indies, during his work on the Trinidad soil fauna.

Anommatocoris gen. n. (fig. 1, a, b, and c).

Head entirely without compound eyes and without ocelli; distinctly pubescent but without the paired setae characteristic of the Aphaninae (Rhyparochrominae); clypeus (tylus) convexly prominent and strongly delimited from vertex, extending anteriorly well beyond juga; vertex convex, wrinkled and minutely tuberculate at sides, not at all smooth and shining as is the clypeus; bucculae strongly elevated, extending the whole length of underside of head and with the posterior ends distinctly acuminate or toothed; seen from below the bucculae strongly divergent towards base of head; rostrum slender, extending to posterior margin of second apparent ventral segment (third), four-segmented; antennae normal for Lygaeidae, inserted close to middle of bucculae, the first segment short, scarcely reaching apex of clypeus (tylus), the fourth segment longest and fusiform.

Pronotum smooth, shining, with distinct irregular pubescence, distinctly flattened, the anterior collar indistinct, sunk well into anterior lobe seen from above but ventrally very distinct; lateral margins of pronotum convex anteriorly and straight posteriorly, the margins distinctly ridged but not truly carinate or explanate; suture between anterior collar and anterior lobe with a few indistinct punctures; anterior lobe impunctate, posterior lobe irregularly distinctly punctate; posterior margin convexly curved, slightly sinuate above base of scutellum; humeral angles not rounded, angular but not prominent. Pro-, meso- and meta-sterna with a sinuate longitudinal carina on each side, most elevated on meta-sternum, the carinae close together on prosternum, diverging on to mesosternum, then gradually approaching again towards posterior margin of metasternum between the hind coxae. Metapleural scent gland opening very distinct, the furrow strongly elevated above the evaporative area and forking into two branches, one extending to near the lateral margin of metapleuron, the other extending to posterior margin of metapleuron, thus producing the effect of a T-shaped elevation on the metapleuron (fig. 1, b). Scutellum small and equilaterally triangular, slightly convex.

Elytra entirely coriaceous, no claval suture (the clavus fused with the corium) and no membrane, the elytral commissure perfectly straight to apices of elytra, which are very convex and entirely cover the abdomen, extending downwards on each side well below it,

[1] J. G. Myers, 1924, *Psyche* **31**: 259–278.

so that seen from below the abdomen is sunk well into the cavity formed by the elytra (fig. 1, b). The whole effect is extremely Coleopteroid; venation absent, a single strongly raised, carina-like vein extending from base of elytron to about middle; elytra strongly constricted laterally and less so dorsally at about one-third of length from their bases; basad of the dorsal and lateral constriction, distinctly but rather irregularly punctate; distinctly pubescent, the hairs longest laterally and towards apices of elytra. Legs more

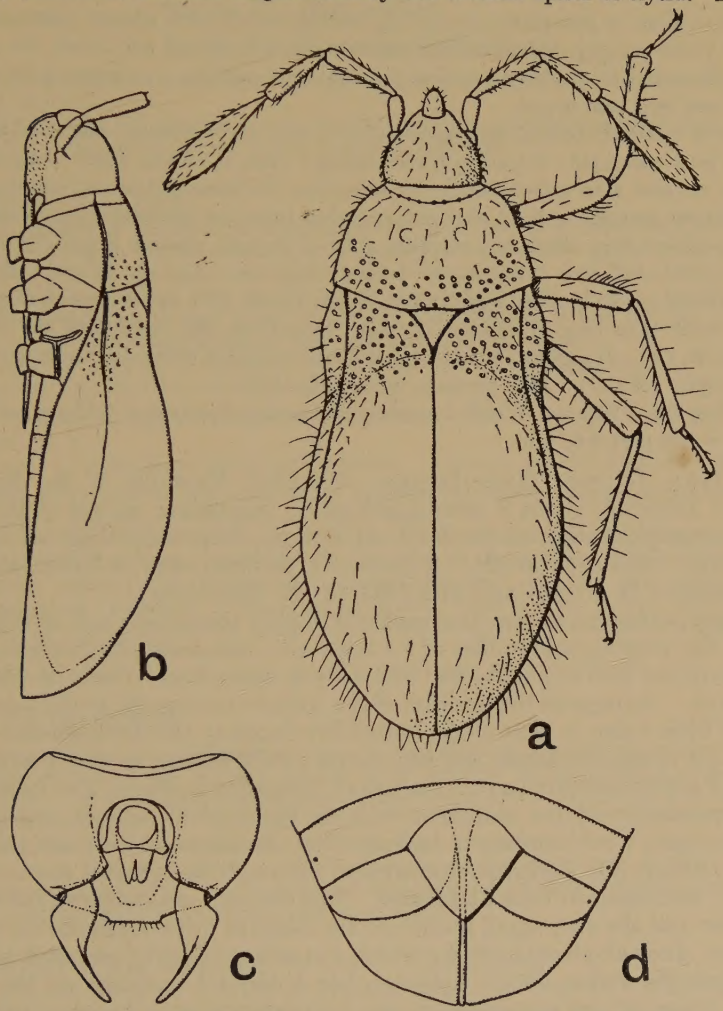

FIG. 1.—*Anommatocoris minutissimus* gen. et sp. n.—*a*, dorsal; *b*, lateral view; *c*, male genitalia; *d*, ovipositor and triangular flap-like lobe of 6th ventrite.

or less normal, the coxae widely separated, the femora slightly thickened, the front femora not swollen and unarmed except for a row of fine straight bristle-like hairs along underside; similar rows of bristles present on mid and hind femora and along outer side of all tibiae; tarsi all two segmented.

Abdomen with all the ventral sutures straight and reaching the lateral margins on each side; all the spiracles situated ventrally near lateral margins of ventrites; trichobothria apparently absent; venter strongly convex from side to side. Male genitalia symmetrical

(fig. 1, c); aedeagus very short and tubular, strongly curved. Female with complete ovipositor; the preceding ventrite (6th) with a large median triangular, semi-transparent flap-like lobe, produced posteriorly over the base of the ovipositor (fig. 1, d).

Genotype : *Anommatocoris minutissimus* sp. n.

Anommatocoris minutissimus sp. n. (fig. 1, a, b, c and d).

Colour :—More or less uniformly shining reddish-brown with whitish pubescence, the head pale yellowish-grey, except for the clypeus, which is shining red-brown, the contrast between the colour of the head and rest of insect very striking; antennae pale chestnut brown; tarsi very pale brown.

Structure :—Head about as long as broad (17 : 18); clypeus nearly one-third length of head seen from above (15 : 17), smooth and shining; sides of vertex, where compound eyes should be, covered with minute setigerous tubercles, the hairs curved and sub-depressed; anterior lateral margins of head near antenniferous tubercles distinctly constricted; first antennal segment very short, not reaching apex of clypeus, relative lengths of segments 7 : 15 : 14 : 24. Relative lengths of rostral segments 16 : 19 : 13 : 26. Pronotum distinctly wider across humeral angles than long in middle (37 : 24) and much narrower at pronotal collar than long in middle (17 : 24). Scutellum only one-fourth the length of pronotum (6 : 24). Hemelytra at widest part about one-third wider than pronotum across humeral angles (48 : 37). Male genitalia figured (fig. 1, c).

Total length ♂ 1·70 mm. Width across humeral angles of pronotum 0·52 mm. and across elytra at widest part 0·68 mm.

Habitat :—British West Indies : Trinidad, Foothills of the Northern Range of Trinidad, about 2 miles north of St. Augustine, in soil of the cacao experimental plantation of the Dept. of Botany, Imperial College of Tropical Agriculture. Soil detrital silt. 3 ♂ and 3 ♀ in litter, and in 3-inch soil cores taken between 16.xi.1943 and 23.ii.1944 (*A. H. Strickland*).

The genus *Anommatocoris* is apparently highly specialised and is difficult to place in the existing subfamilies of Lygaeidae. According to Barber's key to the subfamilies (1917, *Psyche* **24** : 129–131) it runs down closest to the Oxycareninae. As regards the position of the spiracles as a guide to the subfamily, this is of little value in view of the variability found in the Aphaninae. Judging by this character alone, the new genus could belong to the Heterogastrinae, Pachygronthinae or Aphaninae (*Rhyparochromaria* and *Lethaearia*). The segmentation of the abdomen with all the ventral sutures reaching the lateral margins would appear to indicate that *Anommatocoris* is not related to the Aphaninae (*i.e.* Rhyparochrominae) although the general appearance is distinctly reminiscent of the *Lethaearia*. The entirely coriaceous elytra without membrane and the very small scutellum are found in other Lygaeids such as the European *Anomaloptera* A. & S., which has similar highly elevated bucculae and *Jakowleffia* Puton which, however, has a distinct venation on the elytra. Both of these genera are placed in the Oxycareninae. Another beetle-like Lygaeid with entirely coriaceous elytra is *Sympeplus* Bergroth. None of these genera possesses the curious T-shaped metasternal scent gland furrow and all possess well-developed compound eyes. The Aphaninae, so far as I am aware, all have the suture between the third and fourth ventral abdominal segments curved anteriorly and not reaching the lateral margins so that the *Lethaearia* with all ventral abdominal spiracles is excluded as a resting-place for the new genus. I therefore propose to place *Anommatocoris* as an aberrant member of the Oxycareninae in spite of the fact that the anterior femora are little swollen and unarmed and that all the spiracles are ventral.

PUBLICATIONS

The Publications of the Royal Entomological Society are *Transactions* and *Proceedings*.

The *Transactions* form an annual volume, each paper in the volume being issued as a separate part. The parts are issued irregularly throughout the year.

The *Proceedings* are issued in three series:

Series A. General Entomology
Series B. Taxonomy
Series C. Journal of Meetings

Series A and B are issued in twelve parts, forming an annual volume of approximately 240 pages.

The following information is supplied for the guidance of authors wishing to submit papers for publication in any of the Society's journals.

INTRODUCTORY

The Society is prepared to undertake the provision of a reasonable number of text figures. The original drawings for such figures must be supplied by authors. Such drawings or groups of drawings must be drawn to a scale which will permit of their reduction to an area of dimensions not exceeding $7\frac{1}{2} \times 4\frac{3}{4}''$. In the case of the *Proceedings Series A* and *Series B*, authors are required to pay for the necessary blocks for the provision of plates, half-tone and coloured work.

A uniform method is adopted for the citation of bibliographical references in the Society's publications as follows:

Smith, A., 1936, New species of Coccidae. *Proc. R. ent. Soc. Lond.* (B) **6**: 301–306, pl. 1.

——. 1936, New species of Coccidae. *Trans. R. ent. Soc. Lond.* **84**: 901–936.

Titles of periodicals cited are to be abbreviated in the manner indicated in the *World List of Scientific Periodicals, 2nd edition*, 1934.

Authors are entitled to receive 25 copies of their papers free of charge and may purchase additional copies provided that request be made before publication.

Papers offered for publication should be sent to the Secretary, Royal Entomological Society of London, at *41, Queen's Gate, London, S.W.7*, and must be typewritten on one side of the paper only. Sufficient space must also be left between the lines for editorial corrections.

The copyright of the Society's publications is vested in the Society.

TRANSACTIONS

Papers offered for publication in the *Transactions* are considered by the Publication Committee of the Society, which meets usually in the months of May and November. In order that papers may be considered at these meetings it is necessary for the manuscript and drawings for any illustrations to be in the hands of the Secretary fourteen days before the meeting of the Committee.

Papers of less than eight printed pages (approximately 7000 words) will not normally be accepted for the *Transactions*, and papers by authors who are not Fellows of the Society must be communicated by a Fellow.

PROCEEDINGS SERIES A AND SERIES B

Papers submitted for publication in either *Series A* or *Series B* of the *Proceedings* by authors who are not Fellows of the Society may be accepted if they are communicated by a Fellow. Preference will be given to papers written in the English language, and papers of more than eight printed pages (7000 words) will not normally be accepted for publication in these journals.

PROCEEDINGS SERIES C

Series C is issued prior to every General Meeting. It contains abstracts of exhibits to be shown and communications to be made, together with the titles of papers accepted for publication.

The annual subscription to *Series A. General Entomology* is *£2 os. od.; Series B. Taxonomy, £2 os. od.* (single parts *4s. od.*); and *Series C. Journals of Meetings, 6s. od.*

As from January 1936 the journal *Stylops* is continued as *Proceedings Series B. Taxonomy*. Copies of volumes 1–4 are available at *£1 16s. od.* each, post free.

MEETINGS

TO BE HELD IN THE SOCIETY'S ROOMS

41, Queen's Gate, S.W.7

1945.

WEDNESDAY, November 7
„ December 5

1946.

WEDNESDAY, January 16 (ANNUAL MEETING)
„ February 6

THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

The Fellowship and Fees

Fellows pay an Admission Fee of £3 3*s*. The Annual Contribution of £2 2*s*. is due on the first day of January in each year, and is payable in advance. Fellows under the age of 25 years may pay the entrance fee in three equal annual instalments.

Fees should be paid to the Treasurer, at 41, Queen's Gate, S.W.7, and *not to the Secretary*.

Fellows desiring to pay their Annual Contribution through their bankers may obtain an official form of banker's order by applying to the Treasurer.

Fellows whose Contributions for the current year have been paid are entitled to receive the *Transactions* and *Proceedings* of the Society free of charge. Further copies may be purchased at reduced prices by applying to the Registrar.

Forms of application for Fellowship, copies of the Bye-Laws and the List of Fellows may be obtained from the Registrar.

Meetings and Exhibitions

Fellows and others wishing to make a communication to a General Meeting of the Society are requested to send in their names, the title of their exhibit, and a short abstract of their remarks, to the Registrar fourteen days before the meeting at which it is proposed to make the communication. Should it be desirable to publish a fuller account of the communication the manuscript may be submitted for publication in *Proceedings Series A* or *Series B*. If the epidiascope is required, 24 hours' notice must be given. Objects for projections should not exceed 6 ins. by 6 ins.

Fellows resident abroad, or otherwise unable to attend meetings, are reminded that notes or observations sent to the Secretary may be communicated to a General Meeting on their behalf.

PRINTED FOR THE SOCIETY BY RICHARD CLAY AND COMPANY, LTD.,
BUNGAY, SUFFOLK.